

# PATENT ABSTRACTS OF JAPAN

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(71)Applicant : RICOH CO LTD

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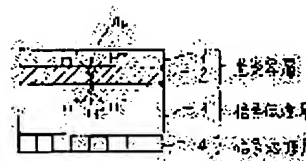
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## (54) OPTICAL FUNCTION ELEMENT

### (57)Abstract:

PURPOSE: To allow the diffusion and transmission of signals without executing intricate connection by forming a light receptive element in such a manner that the bacteriorhodopsins thereof carry the hydrogen ions in the part irradiated with light to a signal transmission layer side when the light receptive element layers are irradiated with the light via a hydrogen ion supplying layer.



CONSTITUTION: This element has light receptive layers 1, 2, the signal transmission layer 3 and a signal processing layer 4. The light receptive layers 1, 2 are formed by laminating the light receptive element layer 2 and the hydrogen ion supplying layer 1. The light receptive element layer 2 is formed by one-dimensionally or two-dimensionally arranging the many light receptive elements oriented with the bacteriorhodopsins and the hydrogen ion supplying layer 1 is in contact with the one surface of the light receptive element layer 2. The signal transmission layer 3 is the hydrogen ion diffusing layer in contact with the light receptive element layer 2 on the surface on the side opposite from the surface in contact with the hydrogen ion supplying layer 1. The signal processing layer 4 is in contact with the signal transmission layer and differentially processes the signal transmitted by the diffusion of the hydrogen ions in the signal processing layer. The light signal is converted of signal as the transfer of the hydrogen ions in this way. Centroid